

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

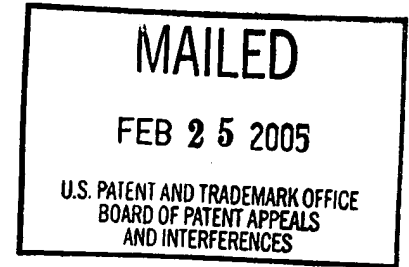
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOEL L. SEREBOFF

Appeal No. 2004-2354
Application No. 09/923,991

ON BRIEF



Before PAK, OWENS, and KRATZ, Administrative Patent Judges.
KRATZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-15, 17 and 21-24. Claims 16 and 18-20 have been indicated as allowable by the examiner. Claims 25-45¹, which are all of the remaining claims pending in this

¹ The examiner's reference to claims 25-44 as being withdrawn from further consideration in the final rejection appears to erroneously exclude claim 45, which latter claim depends from withdrawn claim 38. We note that claim 45 has not been addressed in any of the rejections set forth in the examiner's final action as recorded in the image file wrapper record. The examiner should clarify the record as to the status of claim 45 prior to final disposition of the application.

application, have been indicated as withdrawn from further consideration by the examiner as drawn to non-elected inventions.

BACKGROUND

Appellant's invention relates to a trauma mitigation device. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced below.

1. A trauma mitigation device comprising:
an enclosure having a fluid impervious barrier;
a crushable matrix disposed within said enclosure; and
a viscous fluid disposed within said enclosure.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Jordan	3,574,379	Apr. 13, 1971
Sobel	3,610,609	Oct. 05, 1971
Moore	3,782,768	Jan. 01, 1974
Jensen et al. (Jensen)	4,148,505	Apr. 10, 1979
Weller	5,141,279	Aug. 25, 1992
Courtney (published international application No. PCT/GB96/03243)	WO 97/25551	Jul. 17, 1997

Claims 1 and 21 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Jordan. Claims 4 and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jordan. Claims 2 and 3 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jordan in view of Courtney. Claims 5, 6, 11, 13, 15 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jordan in view of Moore. Claims 7-10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jordan in view of Moore and Jensen. Claim 22 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Jordan in view of Sobel. Claim 12 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Jordan in view of Moore and Sobel. Claim 14 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Jordan in view of Moore and Weller. Claim 24 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Jordan in view of Weller.

We refer to the briefs and to the answer for a complete exposition of the opposing viewpoints expressed by appellant and the examiner concerning the issues before us on this appeal.

OPINION

In reaching our decision in this appeal, we have given careful consideration to appellant's specification and claims, to the applied prior art references, and to the respective positions articulated by appellant and the examiner. In so doing we find ourselves in agreement with the examiner's anticipation rejection of claims 1 and 21 and the examiner's obviousness rejections of claims 2-4, 22 and 23. However, we agree with appellant's viewpoint that the examiner's obviousness rejections as they pertain to claims 5-15, 17 and 24 are not sustainable on this record. Our reasoning follows.

Rejection under 35 U.S.C. § 102(b)

Appellant indicates that the appealed claims subject to this rejection stand or fall together (brief, page 6). Also, appellant does not present separate arguments for the patentability of each rejected claim. Accordingly, we select claim 1 as the representative claim on which we shall decide this appeal as to the examiner's § 102(b) rejection.

Concerning representative claim 1, appellant does not dispute that Jordan describes a device that includes an enclosure including a fluid impervious barrier and a viscous fluid located

within the enclosure. Nor does appellant argue that the foam located within the enclosure of Jordan does not possess the claimed property of being crushable. Rather, appellant's principal argument against the examiner's anticipation rejection of claims 1 and 21 over Jordan is based on appellant's interpretation of the claim term "matrix" as being limited to a particular definition of that term that, in appellant's view, would not be inclusive of the foam of Jordan. In this regard, appellant (brief, page 6) argues that the foam of Jordan "is not structured 'in rectangular arrangement of elements'" as required for appellant's claimed "matrix." Appellant asserts that such a claim interpretation is supported, in part, by the definition 5b of "matrix" in Merriam-Webster's Online Dictionary.²

On the other hand, the examiner maintains that the claimed "matrix" is not limited to the specific dictionary definition espoused by appellant. In the examiner's view, another definition of the claim term "matrix" as a "material in which something is enclosed or embedded" that was found by the examiner in Merriam Webster's Collegiate Dictionary as referred to by the examiner in the answer should be employed. Moreover, the

² See appendix 1 of appellant's reply brief for a copy of that definition.

examiner determined that giving "matrix" that broadest reasonable definition results in the claimed matrix encompassing the foam of Jordan. Accordingly, the examiner has determined that representative claim 1 is prima facie anticipated by Jordan.

We find ourselves in agreement with the examiner. Our reviewing court in In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) stated that during prosecution or examination of a patent application, the claims therein

be interpreted as broadly as their terms reasonably allow. When the applicant state the meaning that the claim terms are intended to have, the claims are examined with that meaning, in order to achieve a complete exploration of the applicant's invention and its relation to the prior art.

The purpose of giving the broadest reasonable interpretation, absent the definition in the specification to the contrary, is to allow appellants to amend³ their claims to obtain the proper coverage by express claim language, "the thought being to reduce the possibility that, after the patent is granted, the claims may be interpreted as giving broader coverage than is justified." In re Prater, 415 F.2d 1393, 1404, 162 USPQ 541, 550 (1969).

³ Prosecution, unlike litigation, allows appellants to amend claims.

Here, as indicated by the examiner in the answer (page 14), the specification does not define the meaning of "matrix" to exclude the cellular foam material described in Jordan. In this regard, the description in the subject specification (page 3, lines 6-8) setting forth that appellant's "matrix desirably comprises a multiplicity of matrix elements arrayed within and each generally perpendicular to the principal plane of the laminate" merely specifies a desired preferred matrix arrangement and does not explicitly require a particular definition for that term as used in the claims. Also, we observe that appellant does not dispute the examiner's determination that Merriam Webster's Collegiate Dictionary referred to by the examiner defines "matrix" as "material in which something is enclosed or embedded." See also the definition 3b of "matrix" in Merriam-Webster's Online Dictionary (appellant's reply brief, appendix 1). Those broader definitions of the term "matrix" as employed by the examiner have not been shown by appellants to be unreasonable in that they are inconsistent with or non-encompassing of appellant's specific disclosed embodiments. Thus, we hold that the broadest reasonable interpretation of matrix as determined by the examiner prevails in this case. As

pointed out in In re Morris, 127 F.3d 1048, 1051, 44 USPQ2d 1023, 1029 (Fed. Cir. 1997):

Absent an express definition in their specification, the fact that appellants can point to definitions or usages that conform to their interpretation does not make the [examiner's] definition unreasonable when the [examiner] can point to other sources that support their interpretation.

On this record, we shall affirm the examiner's anticipation rejection.

§ 103(a) Rejection of claims 4 and 23 over Jordan

Appellant does not separately argue the claims subjected to this ground of rejection. Accordingly, we select claim 4 as the representative claim on which we decide this appeal as to this § 103(a) rejection.

In addition to the features of claim 1 discussed above, representative dependent claim 4 requires that the fluid within the claimed enclosure possesses "a viscosity between about 300,000 CPS to 6,000,000 CPS. The examiner acknowledges that Jordan does not explicitly disclose the viscosity value (in CPS units) of the fluid contained within the enclosure of the device disclosed therein. However, the examiner correctly notes that

Jordan (column 2, line 46) teaches that the fluid employed can be a liquid of "any desired viscosity." Jordan (column 2, lines 46-48) further states:

[i]t can be water, oil or other suitable liquid or gel. If a very high viscosity, semifluid substance is used, the form [sic., foam] filling may be dispensed with.

Based on that disclosure of Jordan, the examiner has reasonably determined that it would have been obvious to one of ordinary skill in the art to use fluids having a viscosity within the claimed range as it is within the ambit of one skilled in the art to determine the optimum or workable range of fluid viscosities that are suitable for the shock absorbing device of Jordan. See In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) ("[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.").

Appellant argues that the option of dispensing with the foam filling when using very high viscosity fluids as disclosed in Jordan teaches against using a matrix (foam) within the enclosure. We disagree. The referred to portion of the Jordan disclosure, which is reproduced above, merely provides the option of forming an enclosure without using foam therewithin. Of

course, the normal meaning of the term "may" in describing that option would have also suggested the alternative option of employing the foam with very high viscosity fluid in the enclosure to one of ordinary skill in the art. On this record, we shall sustain the examiner's § 103(a) rejection of claims 4 and 23.

§ 103(a) Rejection of claims 2 and 3 over Jordan and Courtney

In addition to the features of claim 1 discussed above, dependent claim 2 requires that the fluid within the claimed enclosure includes macrosphere particles of a diameter of between about 0.5 mm and 5.0 mm therein. While Jordan does disclose using various fluids including very high viscosity fluids, such as gels, as discussed above, Jordan does not explicitly mention adding particles to the fluid used as recognized by the examiner.

Like Jordan, Courtney (page 17, lines 1-11) discloses a shock absorbing device that can be used in a vehicle bumper to absorb the energy of an impact with another object. To aid that energy absorbing property, Courtney teaches that the fluid (liquid, grease or jelly) should contain small (millimeter size) capsules to enhance the energy absorbing properties of the shock absorbing device containing the fluid. See, e.g., pages 1-5 of Courtney. Based on those teachings of Courtney in combination

with Jordan, the examiner has reasonably determined that it would have been prima facie obvious to provide the capsules (macrosphere particles) of Courtney in the fluid of Jordan to improve the impact resistance of the device of Jordan. As for the claimed size range, the examiner has reasonably determined that one of ordinary skill in the art would have readily determined workable sizes for the capsules within the claim size range based on the teachings of Courtney to use capsules that could include millimeter size capsules. We agree.

Appellant argues that there is no suggestion to add a capsule filled fluid, such as disclosed in Courtney, to the enclosed foam device of Jordan because there would be no need for both the foam and the capsules to absorb applied force or impact energy. We disagree. One of ordinary skill in the art would have clearly recognized the advantage of adding additional shock absorbing capacity to the device of Jordan, via the capsules of Courtney, to obtain the additive effects of the energy absorbing capacity of the foam and the capsule filled fluid. See In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). After all, Jordan (column 2, lines 49 and 50) discloses using semifluid substances with air bubbles therein as an option to add compressibility (energy absorption capacity) to the fluid and

discloses using other measures to absorb energy in the event of an impact at column 4, lines 46-65 of the patent.

Concerning dependent claim 3, we determine that employing a fluid with a viscosity range as claimed in Jordan would have been obvious to one of ordinary skill in the art for the reasons discussed above regarding claim 4.

It follows that, on this record, we will sustain the examiner's obviousness rejections of claims 2 and 3.

§ 103(a) Rejection of claim 22 over Jordan and Sobel

In addition to claim 1, claim 22 requires that an accordion pleat be formed along an edge of the enclosure and that the enclosure is formed from a flexible material. As explained by the examiner in the answer, Jordan discloses forming the casing of flexible material, such as vinyl. See column 1, lines 20-22 and column 2, lines 17-19 of Jordan. As recognized by the examiner, Jordan does not explicitly describe using an accordion pleat along an edge of the casing (enclosure) of the disclosed bumper pad shock absorber. However, the examiner relies on Sobel for showing that a flexible housing for a bumper shock absorber can include a portion that is pleated, like an accordion, to allow for "greater resiliency in the shell 103 upon collision" (see column 4, lines 8-12 of Jordan). We agree with the examiner

that the combined teachings of Jordan and Sobel would have reasonably suggested that one of ordinary skill in the art use an accordion pleat in constructing the enclosure of Jordan as taught by Sobel. One of ordinary skill in the art would have been led to make such a modification of Jordan's device with the reasonable expectation that the resiliency of the flexible enclosure of Jordan's crash protection device would have been increased resulting in an improved impact device.

Appellant argues that claim 22 requires that the pleat structure has the capability of accommodating percussive expansion whereas the accordion like structure of Sobel is constructed to collapse. While Sobel (column 4, lines 12-14) does describe a preferred embodiment wherein the grooves or pleats of the shell enclosure are constructed to permit collapse of the shell during a collision, that disclosure of Sobel does not teach that the pleat structure portion of the shell is not capable of accommodating percussive expansion as appellant claims. Indeed, as discussed above and explained by Sobel, the pleats increase resiliency of the flexible shell enclosure. That disclosure reasonably suggests that the pleat portion of the shell could expand or contract depending on the forces applied

thereto. Consequently, on this record, we will sustain the examiner's § 103(a) rejection of claim 22.

§ 103(a) Rejection of claim 24 over Jordan and Weller

In addition to the features of claim 1, claim 24 specifies that the enclosure includes a layer of foam connected to a pressurized air source. Recognizing that Jordan does not describe such an additional pressurized air source connected foam layer, the examiner turns to Weller for allegedly suggesting such a feature. The difficulty we have with the examiner's position in attempting to combine the teachings of Weller and Jordan is that Weller is drawn to a side impact protection apparatus. In this regard, the examiner has not fairly explained why one of ordinary skill in the art would have been led to modify the resilient shock-absorbing bumper of Jordan that includes liquid and foam inside the bumper with a pressurized air source connected foam layer of Weller that is designed for use in a side impact device, particularly for mounting on an inner door panel rather than on a bumper. The examiner's position that one of ordinary skill in the art at the time of appellant's invention would have further provided another layer of foam connected to a pressurized air source together with the liquid saturated foam of Jordan in the bumper mounted enclosure of Jordan based on

Weller's teachings respecting a side impact protection device is not persuasive of any suggestion in the references' teachings leading one of ordinary skill in the art to such a modification.

Rather, the examiner's conclusion that the claimed structure would have been obvious based on the combined teachings of the disparate disclosures of the applied references appears to be based upon improper hindsight reasoning. See W. L. Gore & Assoc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983). ("To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein only that which the inventor taught is used against its teacher.") Accordingly, the examiner's rejection of claim 24 under 35 U.S.C. § 103(a) is reversed.

§ 103(a) Rejection over Jordan and Moore

Dependent claims 5, 6, 11 and 13 require that the matrix of claim 1 includes a plurality of matrix elements shaped as either cylinders, hemispheres or pyramids. Dependent claim 15 requires hemispheres disposed in pairs connected at the convexities and dependent claim 17 requires pyramids disposed in pairs connected at the apexes.

Because Jordan's enclosure is filled with cellular foam saturated with a liquid, the examiner recognizes that Jordan does not teach a plurality of matrix elements disposed together with a liquid in an enclosure as required by claims 5, 6, 11, 13, 15 and 17. Thus, the examiner relies on Moore for allegedly showing a matrix that includes a plurality of elements shaped as claimed herein. See page 8 of the answer and column 2, lines 33-68 and column 3, lines 15-68 of Moore as referred to by the examiner. The examiner maintains that (answer, pages 8 and 9):

it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a crushable matrix which has a plurality of matrix elements selected from the group consisting of cylinders, hemispheres or pyramids, wherein the crushable matrix includes a plurality of hemispheres, and said hemispheres disposed in pairs connected at the convexities in the trauma mitigation device of Jordan in order to provide improved impact resistance as taught or suggested by Moore.

Jordan and Moore disclose the claimed invention except for the inclusion of pyramids which are disposed in pairs connected at the apexes recited in claim 17. However, Moore teaches the inclusion of a plurality of hemispheres disposed in pairs connected at the convexities as just described above. Furthermore, Moore teaches that these hemispheres can be of any desired shape (column 3, lines 30-42). Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided a trauma mitigation device including pyramids which are disposed in pairs connected at the apexes, since it has been held that a change in shape involves only routine skill in the art (applies to instant claim

17). In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Conspicuously missing from the examiner's analysis, however, is any explanation as to how (and why) one of ordinary skill in the art would have modified the viscous liquid and foam filled enclosure of Jordan to include the gas filled tubular members of Moore together therewith so as to result in a product corresponding to appellant's claimed subject matter that includes a viscous liquid in the enclosure in addition to a plurality of the claimed matrix elements. Indeed, as argued by appellant in the brief (page 9), the tubular members of Moore would appear to be incompatible with the liquid and foam filled structure of Jordan. Here, the examiner has not discharged the burden of developing, prima facie, a persuasive rationale based on the evidence of record that would have led one of ordinary skill in the art to the claimed subject matter from a combination of the disparate teachings of Moore and Jordan.

Consequently, we shall reverse the examiner's § 103(a) rejection of claims 5, 6, 11, 13, 15 and 17 over Jordan and Moore.

§ 103(a) Rejection over Jordan, Moore and Jensen

All of claims 7-10, which are subjected to this rejection, require the plurality of matrix features of claim 5. The examiner has not explained how Jensen would make up for the deficiencies of Moore. Consequently,, for the reasons stated above, we shall reverse the examiner's § 103(a) rejection of claims 7-10 over Jordan, Moore and Jensen.

§ 103(a) Rejection over Jordan, Moore and Sobel

Claim 12, which is subjected to this rejection, requires the plurality of matrix features of claim 5. The examiner has not explained how Sobel would make up for the deficiencies of Moore, as discussed above. Consequently, for the reasons stated above, we shall reverse the examiner's § 103(a) rejection of claim 12 over Jordan, Moore and Sobel.

§ 103(a) Rejection over Jordan, Moore and Weller


Claim 14, which is subjected to this rejection, requires the plurality of matrix features of claim 5 and the pressurized air connected foam layer feature of claim 24. It follows that, for the combination of the deficiencies in the examiner's rejection of claim 5 and those in the examiner's rejection of claim 24, as separately discussed above, we shall reverse the examiner's § 103(a) rejection of claim 14 over Jordan, Moore and Weller.

CONCLUSION

The decision of the examiner to reject claims 1 and 21 under 35 U.S.C. § 102(b) as being anticipated by Jordan; to reject claims 4 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Jordan; to reject claims 2 and 3 under 35 U.S.C. § 103(a) as being unpatentable over Jordan in view of Courtney; and to reject Claim 22 under 35 U.S.C. § 103(a) as being unpatentable over Jordan in view of Sobel is affirmed. The decision of the examiner to reject claims 5, 6, 11, 13, 15 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Jordan in view of Moore; to reject claims 7-10 under 35 U.S.C. § 103(a) as being unpatentable over Jordan in view of Moore and Jensen; to reject claim 12 under 35 U.S.C. § 103(a) as being unpatentable over Jordan in view of Moore and Sobel; to reject claim 14 under 35 U.S.C. § 103(a) as being unpatentable over Jordan in view of Moore and Weller; and to reject claim 24 under 35 U.S.C. § 103(a) as being unpatentable over Jordan in view of Weller is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (Effective Sept. 13, 2003; 69 Fed. Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat., Office 21 (Sept. 7, 2004)).

AFFIRMED-IN-PART


Chung K. Pak

Chung R. Pak
Administrative Patent Judge

Terry J. Owens
Terry J. Owens

Administrative Patent Judge

Peter F. Kuntz

Peter F. Kratz
Administrative Patent Judge

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